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1.4 Negative and fractional indices

N1

a) x^{-5}

b) x^{-7}

c) $\frac{1}{2}x^{-13}$

N2

a) $10x^{\frac{1}{2}}$

• $10x^{\frac{1}{4} + \frac{2}{3}}$

• $10x^{\frac{3}{12} + \frac{8}{12}}$

b) $3x^{\frac{11}{6}}$

• $3x^{\frac{5}{12} - \frac{2}{3}}$

• $3x^{\frac{5}{16} - \frac{4}{16}}$

c) $4x^2$

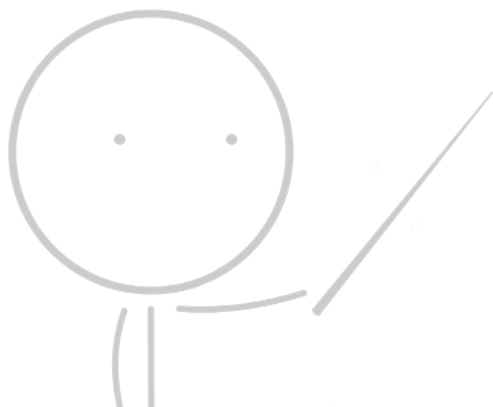
• $(\sqrt[3]{8})^2 = 4$

• $x^{3 \times \frac{2}{3}} = x^2$

d) $14x^{0.25}$

• $7x^{-\frac{1}{4}} + 2x^{\frac{1}{2}}$

• $14x^{\frac{1}{4}}$



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N3

a) $x^{\frac{7}{10}}$

• $x^{\frac{1}{5}} + x^{\frac{1}{2}}$

• $x^{\frac{1}{5} + \frac{1}{2}}$

• $x^{\frac{2}{10} + \frac{5}{10}}$

b) $x^{-\frac{5}{6}}$

• $x^{\frac{1}{4}} \div (x^{\frac{1}{2}})^3$

• $x^{\frac{1}{4} - \frac{3}{2}}$

• $x^{\frac{1}{4} - \frac{6}{4}}$

c) $x^{\frac{25}{6}}$

• $(x^{\frac{1}{3}})^2 \times (x^{\frac{1}{2}})^7$

• $x^{\frac{2}{3} + \frac{7}{2}}$

• $x^{\frac{2}{6} + \frac{21}{6}}$

a) 64

• $(\sqrt{16})^3$

b) $\frac{1}{64}$

• -4^{-3}

• $1/4^3$

c) $9/25$

• $\frac{1}{(\sqrt{125})^2} \div \frac{1}{(\sqrt[3]{27})^2}$

• $1/25 \div 1/9$

• $1/25 \times 9/1$

• $9/25$

a) $\frac{1024}{3125} \times 15/12$

• $\frac{(\sqrt{16})^5}{(\sqrt{25})^5} \times 3/1 \times 5/2$

b) $x^5 + 8x^7$

• $\frac{x^5}{x^{10}} + \frac{8x^3}{x^{10}}$

c) $5x^{-5} - 3x^{-2}$

• $\frac{30x^2}{6x^7} - \frac{18x^5}{6x^2}$



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a) 512

• $(\sqrt{64})^3$

b) $64x^5$

• $x^3(2^6 \times 1/3 \times 6)$

• $64x^{3+2}$

N7

a) $1/5$

• $\frac{1}{\sqrt{25}}$

b) $\frac{6561}{256x^{-1}}$

• $x \left(\frac{3^8}{2^8} x^{-1/4 \times 8} \right)$

• $\frac{6561}{256x^{-2+1}}$

N8

a) 27

• $(\sqrt[3]{81})^3$

b) $3x^{-1/2}$

• $\frac{27x^{3/2}}{9x^2}$

a) $1/3x$

• $y^{1/2} = (1/9x^2)^{1/2}$

b) $18x^{-2}$

• $2y^{-1} = 2(1/9x^2)^{-1}$

• $2(9^{-1 \times -1} x^{-2/1})$

• $2(9x^{-2})$

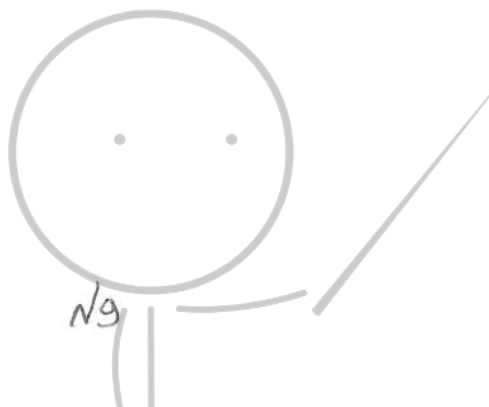
N10

$5^{4x-10} \rightarrow y = 4x-10$

• $25^{2x-5} = 5^x$

• $(5^2)^{2x-5} = 5^x$

• 5^{4x-10}



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